What is claimed is:

1. A method for modulating the immunostimulatory effect of a CpG dinucleotide containing compound by introducing an immunomodulatory moiety at a position either 5′ to or 3′ to the CpG dinucleotide.

2. The method according to claim 1 wherein the compound further comprises additional oligonucleotide sequences.

3. The method according to claim 2, wherein the compound has the structure

5′-Yn...Y6-Y5-Y4-Y3-Y2-Y1-CG-X1-X2-X3-X4-X5-X6-X7-X8-X9...Xm-3′,

wherein C is cytosine, G is guanosine, a substituted guanosine, including inosine and 7-deazaguanosine, and each X and Y is independently a nucleoside or an immunomodulatory moiety, and n is a number from –9 to + 20, and m is a number from –6 to + 20.

4. The method according to claim 3, wherein the immunomodulatory moiety is selected from the group consisting of abasic nucleoside, 1,3-propanediol linker (substituted or unsubstituted), nitropyrrole, nitroindole, deoxyuridine, inosine, isoguanosine, 2-aminopurine, nebularine, 7-deazaguanosine, 4-thiodeoxyuridine, 4-thiothymidine, d-isoguanosine, d-iso-5-methylcytosine, P-base, and 3′-3′ linkage.

5. A compound having increased or reduced immunostimulatory effect, the compound comprising a CpG dinucleotide and an immunomodulatory moiety, wherein the increased or reduced immunomodulatory effect is relative to a similar compound lacking the immunomodulatory moiety.

6. The compound according to claim 5, wherein the compound further comprises additional oligonucleotide sequences.

7. The compound according to claim 6, wherein the compound has the structure

5'-Yn...Y6-Y5-Y4-Y3-Y2-Y1-CG-X1-X2-X3-X4-X5-X6-X7-X8-X9...Xm-3',

wherein C is cytosine, G is guanosine, a substituted guanosine, including inosine and 7-deazaguanosine, and each X and Y is independently a nucleoside or an immunomodulatory moiety, and n is a number from –9 to + 20, and m is a number from –6 to + 20.

8. The compound according to claim 7, wherein the immunomodulatory moiety is selected from the group consisting of abasic nucleoside, 1,3-propanediol linker, nitropyrrole, nitroindole, deoxyuridine, inosine, isoguanosine, 2-aminopurine, nebularine, 7-deazaguanosine, 4-thiodeoxyuridine, 4-thiothymidine, d-isoguanosine, d-iso-5-methylcytosine, P-base, and 3'-3' linkage.

9. The compound according to claim 8, wherein the oligonucleotide sequence is complementary to a gene.

10. The compound according to claim 8, wherein the oligonucleotide sequence is not complementary to a gene.

11. A method for obtaining an antisense-specific reduction in the expression of a gene in a mammal, the method comprising administering to the mammal an oligonucleotide that is complementary to the gene and which comprises a CpG dinucleotide and an immunomodulatory moiety, wherein the oligonucleotide has less immunostimulatory effect than a similar oligonucleotide lacking the immunomodulatory moiety.

12. The method according to claim 11, wherein the mammal is a human.

13. The method according to claim 11, wherein the oligonucleotide has only one immunomodulatory moiety for each CpG dinucleotide present in the oligonucleotide.

14. The method according to claim 13, wherein the oligonucleotide has only one immunomodulatory moiety.

15. The method according to claim 11, wherein the oligonucleotide administration is parenteral, oral, sublingual, transdermal, topical, intranasal, intratracheal, or intrarectal.

16. The method according to claim 11, wherein the oligonucleotide is administered at a sufficient dosage to attain a blood level of oligonucleotide from about 0.01 micromolar to about 10 micromolar.

17. The method according to claim 11, wherein the dosage of oligonucleotide is from about 0.1 mg oligonucleotide per patient per day to about 200 mg oligonucleotide per kg body weight per day.

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18. A method for inducing an immune response in a mammal, the method comprising administering to the mammal a compound comprising a CpG dinucleotide and and an immunomodulatory moiety, wherein the compound has greater immunostimulatory effect than a similar compound lacking the immunomodulatory moiety.

19. The method according to claim 18, wherein the mammal is a human.

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18. The method according to claim 18, wherein the administration of the compound is parenteral, oral, sublingual, transdermal, topical, intranasal, intratracheal, or intrarectal.

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19. The method according to claim 18, wherein the compounds are administered at a sufficient dosage to attain a blood level of oligonucleotide from about 0.01 micromolar to about 10 micromolar.

20. The method according to claim 18, wherein dosage of compound is from about 0.1 mg per patient per day to about 200 mg per kg body weight per day.

21. The method according to claim 18, wherein the compound is administered in combination with a vaccine.

22. The method according to claim 21, further comprising administering an adjuvant.

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